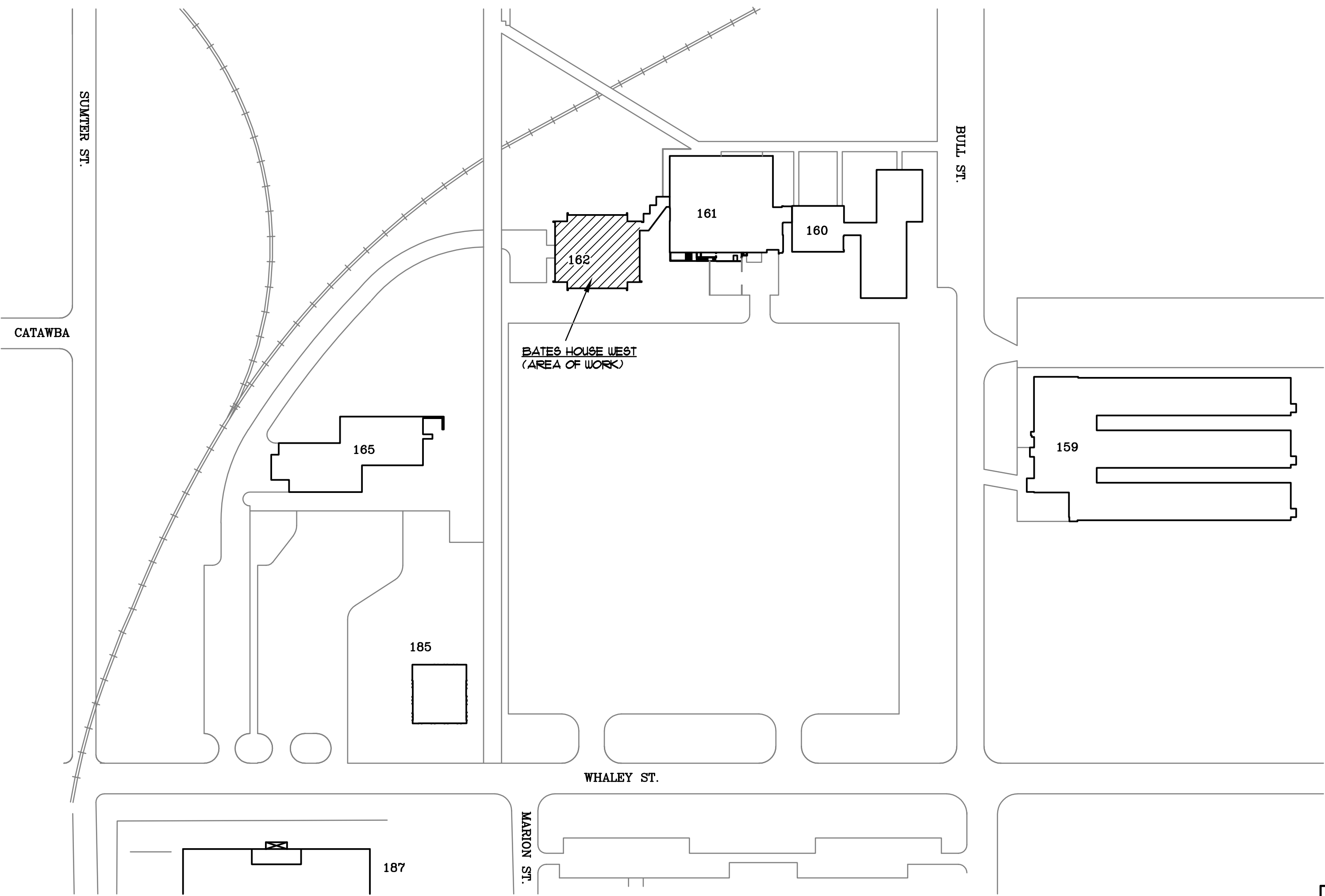



BATES HOUSE WEST - CHW & HW RISER MODIFICATIONS

THE UNIVERSITY OF SOUTH CAROLINA
COLUMBIA, SOUTH CAROLINA

FACILITIES PLANNING AND CONSTRUCTION

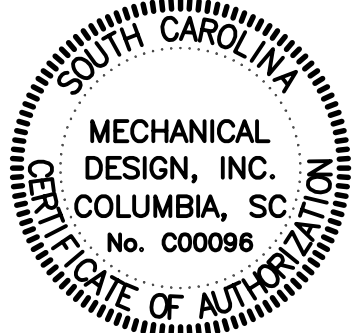


 UNIVERSITY OF SOUTH CAROLINA
SCALE: 1" = 200'-0"

MECHANICAL ENGINEER
MECHANICAL DESIGN, INC.
4403 BROAD RIVER ROAD
COLUMBIA, S.C. 29210
(803) 731-9834

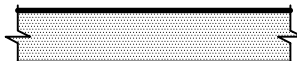

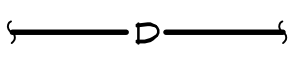
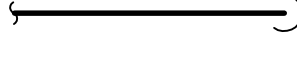





CODE REVIEW INFORMATION
PROJECT DESIGNED IN ACCORDANCE WITH:
1. International Building Code - 2012 Edition.
2. International Plumbing Code - 2012 Edition.
3. International Mechanical Code - 2012 Edition.
4. National Electric Code - 2011 Edition.
5. Seismic Design Category C

SPECIAL NOTE:
CONTRACTOR IS REQUIRED TO VISIT PROJECT SITE PRIOR TO SUBMITTING BID AND THOROUGHLY FAMILIARIZE HIMSELF WITH ALL EXIST. CONDITIONS RELATING TO THIS PROJECT. SUBMISSION OF A BID WILL BE CONSIDERED AS EVIDENCE THAT THE CONTRACTOR HAS VISITED THE SITE OF WORK.

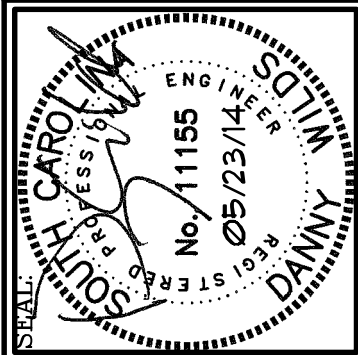


MECHANICAL DESIGN INC.
4403 Broad River Road
Columbia, S.C. 29210
(803) 731-9834
(803) 731-9837 FAX
CONTACT: Justin Varco
DATE: 05/23/14 COMM. NO. 143089

INDEX OF DRAWINGS	
T1	TITLE SHEET
M1	MECHANICAL FLOOR PLANS
M2	MECHANICAL SPECIFICATIONS

SYMBOLS	
	NEW MATERIAL
	MATERIAL TO BE REMOVED
	CONDENSATE DRAIN LINE (INSULATED)
	PIPE TURNING DOWN
	PIPE TURNING UP
	VALVE IN RISER
	MAKE-UP WATER FROM WATER SOFTENER
	GATE VALVE
	CONNECT NEW TO EXISTING
(OF/CI)	OWNER FURNISHED/CONTRACTOR INSTALLED

- NOTES**
- DO NOT SCALE DRAWINGS. VERIFY ALL REQUIRED INFORMATION IN FIELD BY VISITING SITE PRIOR TO SUBMITTING BID.
 - DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED.
 - WHENEVER THE WORD "PROVIDE" IS USED IT SHALL MEAN FURNISH AND INSTALL COMPLETE AND READY FOR USE.
 - ALL OPENINGS THRU EXISTING STRUCTURES SHALL BE CORE DRILLED.
 - ALL MATERIALS CALLED FOR TO BE REMOVED SHALL REMAIN THE PROPERTY OF THE OWNER. ANY ITEM THE OWNER DOES NOT WISH TO KEEP SHALL BE REMOVED FROM THE SITE OF WORK.
 - PROVIDE ALL ITEMS OF MISCELLANEOUS STEEL AS REQUIRED FOR INSTALLATION OF ALL MECHANICAL ITEMS.
 - PIPING SYSTEMS SHALL BE DRAINED AS REQUIRED FOR INSTALLATION OF WORK.
 - PIPING SHALL BE KEPT CLEAN OF DEBRIS DURING INSTALLATION.
 - ALL EXISTING PIPE SIZES NOTED ON THE HVAC FLOOR PLANS SHALL BE VERIFIED AT THE PRE-BID/SITE VISIT.



CDW	CHECKED BY:	JV	DATE:	05/23/14	DRAWN BY:	BATES	DATE:	05/23/14	DESCRIPTION	
	ORIG. BY									

PROJECT TITLE: **BATES HOUSE WEST - CHW & HW
PIPE RISER MODIFICATIONS**

SHEET: **T1**
OF 1

SHEET IN SET: **1 OF 3**

University of South Carolina

MECHANICAL SPECIFICATIONS

1.0 GENERAL:

- 1.1 All material and work shall comply with the National Fire Codes of the NFPA, National and local codes and the 2012 International Building Code and Mechanical Codes.
- 1.2 Drawings for work under Division 15 are diagrammatic and generally, indicate reasonable arrangements. Work under Division 15 includes all work necessary to make HVAC systems complete and fully operational.
- 1.3 SITE VISIT: All bidders shall visit the site of work and become familiar with existing conditions before submitting a bid. Submission of a bid will be considered as evidence that the Contractor has visited the site of work. No extra payments will be allowed the Contractor because of extra work made necessary by his/her failure to do so.
- 1.4 DEMOLITION ITEMS: The owner reserves the right to keep any items called for to be removed in the construction documents. Items not kept by the Owner shall be carried away from the site of work. Coordinate with Owner on each item to be removed.
- 1.5 SUBSTITUTIONS: For substitution requests made during the bidding of the project. All requests for substitutions shall be submitted in writing so as to be received by the Engineer at least ten (10) calendar days prior to final pricing and must be granted permission to quote before award of contract.
- 1.6 MATERIAL AND EQUIPMENT SUBMITTALS: Submit for review detailed drawings of all equipment and all material listed in this section. All submittal data shall be bound in a hardback binder. Partial submittals will not be reviewed by the Engineer. Furnish six (6) copies of equipment submittals. Review rendered on equipment submittals shall not be considered as a guarantee of measurements of building conditions. WHERE DRAWINGS ARE REVIEWED, SAID REVIEW DOES NOT MEAN THAT DRAWINGS HAVE BEEN CHECKED IN DETAIL; SAID REVIEW DOES NOT IN ANY WAY RELIEVE THE CONTRACTOR FROM HIS RESPONSIBILITY OR NECESSITY OF FURNISHING MATERIAL OR PERFORMING WORK AS REQUIRED BY THE CONTRACT DOCUMENTS. Partial submittals will not be reviewed by the Engineer. Submit for the following materials and equipment for review by the Engineer:
1. Pipe and pipe fittings,
 2. Valves,
 3. Pipe insulation,
 4. Access doors
- 1.7 WORKMANSHIP: Work that is not of good quality will require removal and reinstallation.
- 1.8 COORDINATION: No work shall be performed on this project before thoroughly coordinating all space requirements for pipes, control panels, and control components with all trades concerned and existing conditions. Temperature and equipment control wiring is included under Division 15.
- 1.9 The responsibility for obtaining, cutting, and patching for work under Division 15 of the specifications is included in Division 15.
- 1.10 DAMAGES DURING CONSTRUCTION: Contractor shall be responsible for any costs of repairing any damages caused by this contractor, to the building, building contents, and site during construction and warranty period.
- 1.11 WARRANTY: Warrant all control components, piping and any other materials specified under Division 15. Warrant all equipment, ductwork, piping and any other materials specified under Division 15 for a period of one (1) year from the date of project acceptance unless otherwise indicated. Upon failure of any part(s) of the system during the warranty period, the affected part(s) shall be repaired or replaced promptly by and at the expense of the Contractor.
- 1.12 IDENTIFICATION: Identify each new section of piping with pipe markers. labels shall be Opti-Code, Seton or an approved equal. labels shall a minimum of 1-1/2" tall, include system type and flow direction. Provide labels as follows:
- Chilled Water Supply/Return – Green background/White letters
Hot Water Supply/Return – Yellow background/Black letters
- 1.13 Markers shall comply with ANSI and OSHA specifications. All wordings, Colors, text size and number of occurrences shall comply with standard ANSI/OSHA specifications.
- 1.14 RECORD DRAWINGS: Provide record drawings for all work included in Division 15. Maintain on the job site one complete set of drawings for this project. All changes authorized by the Engineer and/or Owner as to locations, sizes and routing of equipment, ductwork, piping and other material shall be indicated in red ink on the drawings as work progresses. Before Substantial Completion, Contractor shall obtain at his/her expense, a corrected set of reproducible mylar drawings which shall include the information outlined above. Drawings (including schedules, details, and sections) shall be corrected to depict all substituted materials and equipment. For this purpose the Owner will make available to the Contractor, the original drawings of the work, to be used to make the reproducible mylar drawings noted above. The final, annotated, plastic reproducible (mylar) drawings shall be turned over to the Owner at the time of Substantial Completion.

1.15 ASBESTOS

- A. At any time the contractor encounters asbestos containing materials, he shall immediately stop work and suspend any further work until asbestos containing materials are removed by others. Contractor shall, upon discovery of asbestos containing materials, notify Owner or Owner's representative, who shall be responsible for the removal of the asbestos containing materials, all in accordance with NESHAP (National Emission Standard for Hazardous Air Pollutants). Any form of asbestos removal or demolition shall be by owner. Engineer is not an "Owner or Operator" as defined under NESHAP.
- B. Contractor is responsible for, and shall be aware of all state and federal laws pertaining to asbestos as well as NESHAP requirements.

1.16 PAINTING

- A. Patch damaged or altered portions of walls with gyp board of same thickness as existing. Trowel joints with spackle and sand for a smooth finish.
- B. Provide (1) coat primer and (2) coats paint on access doors and repaired portions of walls. Submit color chart for owner approval.
- C. Paints and primers shall not exceed the VOC content limits.
- D. Provide paint as manufactured by Devco, Sherwin Williams, Pittsburgh, Glidden or an approved equal,

- 1.17 ACCESS DOORS: Provide heavy duty 16 ga. steel access door with primed finish, concealed hinge, and flush mounted keyed locking device. Install as directed to permit access to valves. Provide doors as manufactured by Karp, Elmdoor, Mifab, or Bilco.

2.0 INSULATION

- 2.1 All insulation material shall have a fire hazard classification not to exceed flame spread of 25 and smoke developed rating of 50, as listed by Underwriters Laboratories and acceptable under NFPA standards.
- 2.2 Fiberglass pipe insulation shall be Owens-Corning one-piece heavy density fiberglass pipe insulation with the ASJ/SSL-II jacket.
- 2.3 All insulation work shall be performed by a franchised insulation firm. All insulation shall be installed in a workmanlike manner by qualified workers in the regular employ of the insulation firm
- 2.4 Chilled water and hot water pipes shall be covered with 1-1/2" thick fiberglass pipe insulation. Hot water pipes 2" and larger shall be insulated with 2" thick fiberglass pipe insulation. Pipe insulation not employing the double adhesive, self-seal lap shall have the lap stapled 3" on center with outward clinching staples. Two coats of vapor sealing mastic meeting the VOC limits.
- 2.5 Seal all butt joints with tape and mastic. Tees and elbows greater than 45" shall be mitered and sealed with adhesive. Entire installation shall be in strict accordance with the manufacturer's recommended installation instructions.

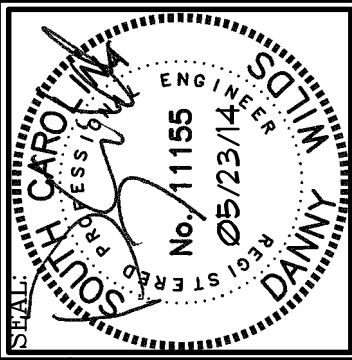
3.0 PIPING

- 3.1 Chilled water and Hot water pipe, 2-1/2" and larger shall be schedule 40 black steel, ASTM A53 Gr.B, ERW.
- 3.1 Flanges shall be ASTM A105, Class 150, R.F., WN, with ring type gaskets 1/16" thick, compressed non-asbestos, Garlock Style 3000 or approved equal. Stud bolts shall be ASTM A193, Gr. B7 with heavy hex nuts, ASTM A194, Gr. 2H.
- 3.2 TESTING: All piping installed shall be hydraulically tested as specified herein. Provide all equipment required to make these tests. Piping may be tested a section at a time in order to facilitate the construction. Fill the section of pipe to be tested with water and bring the section up to pressure with a test pump. These tests shall be conducted before any insulation is installed and any insulation installed prior to these tests shall be removed. Gauges used in the tests shall have been recently calibrated with a dead weight tester. All tests shall apply full test pressure to the piping for a minimum of 24 hours. All tests shall be conducted at the water working pressure of the pipe installed. When schedule 40 or standard weight pipe is used, the test pressure shall be 150 pounds per square inch.
- 3.3 CHEMICAL CLEANING OF PIPES: Furnish all labor and chemicals for the cleaning of pipes. Chemically clean all new piping systems.

4.0 VALVES: (OWNER SUPPLIED CONTRACTOR INSTALLED)

- 4.1 Provide ball valves on CHW and HW piping, 150 SWP, 600 WOG, bronze body, stainless steel ball, and blow-out proof stem. The manufacturer name and the working pressure to be cast on valve body. Install valves with stems above the horizontal.
- 4.2 Provide 3/4" drain valves on CHW and HW branch piping to AHU's as indicated on the drawings. Valves shall be model: 70-100-HC w/ a stainless stell ball and stem. Valves shall be manufactured by Conbraco Ind. (Apollo) or equal as listed below.
- 4.3 All valves shall be purchased by the owner and installed by the contractor. Valves shall be of the same manufacturer by Apollo, Nibco, Crane, Hammond, or approved equal.

END OF DIVISION 15



BUILDING:	DRAWING:	DATE:	DRAWN BY:	CHECKED BY:	CDW			
					DATE	ORIG.	BY	BY
REV.	BATES	05/23/14	JVJ					
	DESCRIPTION							

BATES HOUSE WEST – CHW & HW
PIPE RISER MODIFICATIONS

University of South Carolina

PROJECT TITLE:

SHEET:

M2

OF 2

SHEET IN SET:

3 OF 3



MECHANICAL
DESIGN,
INC.

4403 Broad River Road
Columbia, S.C. 29210
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DATE: 05/23/14

COMM. NO. 143089